

WHAT IS CLAIMED IS:

1. A signal processing apparatus, comprising:

a decoder for decoding a stream signal so as to generate a digital audio signal of a low frequency effect channel and digital audio signals of first through n'th ($n \geq 2$) channels, wherein the stream signal includes information of a low frequency effect channel, the information containing a low frequency component, and also includes information of the first through n'th channels, the information containing components of all frequency bands, the first through n'th channels having different sound source positions;

an adder section for adding the digital audio signal of the low frequency effect channel and the digital audio signal of a specified channel among the first through n'th channels, so as to generate an addition signal;

an n number of D/A conversion sections for converting the digital audio signals of the first through n'th channels, excluding the digital audio signal of the specified channel, and the addition signal into n types of analog audio signals;

a first signal processing section for performing a first signal processing process of the analog audio signal obtained as a result of D/A conversion of the addition signal, so as to generate an analog audio signal of the low frequency effect channel; and

a second signal processing section for performing a second signal processing process of the analog audio signal obtained as a result of D/A conversion of the addition signal, so as to generate an analog audio signal of the specified channel.

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2. A signal processing apparatus according to claim 1, further comprising a multiplication section for adjusting an amplitude of the digital audio signal of the low frequency effect channel generated by the decoder.

3. A signal processing apparatus according to claim 1, further comprising a multiplication section for adjusting an amplitude of the digital audio signal of the specified channel generated by the decoder.

4. A signal processing apparatus according to claim 1, wherein the first signal processing process is a low pass filtering process.

5. A signal processing apparatus according to claim 1, wherein the second signal processing process is one of a high pass filtering process or an all pass filtering process.

6. A signal processing apparatus according to claim 5, wherein the second signal processing section includes a switching section for selecting one of the high pass filtering process and the all pass filtering process,

wherein the all pass filtering process is selected when a low frequency analog audio signal is output from the second signal processing section, and the high pass filtering process is selected when the low frequency analog audio signal is not output from the second signal processing section.

7. A signal processing apparatus according to claim 1, wherein n is 5, and the stream signal contains information of 5.1 channels.

1. The first part of the report, "Introduction", discusses the importance of the study and the objectives of the research. It also provides a brief overview of the methodology used in the study.

2. The second part of the report, "Literature Review", discusses the existing literature on the topic. It identifies the gaps in the literature and provides a framework for the study.

3. The third part of the report, "Methodology", describes the research design, data collection methods, and statistical analysis techniques used in the study.

4. The fourth part of the report, "Results", presents the findings of the study. It includes tables and figures that illustrate the data and the statistical results.

5. The fifth part of the report, "Discussion", discusses the implications of the findings and provides recommendations for future research.

6. The sixth part of the report, "Conclusion", summarizes the main findings of the study and provides a final statement on the importance of the research.

7. The seventh part of the report, "References", lists the sources of information used in the study.

8. The eighth part of the report, "Appendix", contains supplementary material that is not included in the main body of the report.

9. The ninth part of the report, "Index", provides a list of keywords and terms used in the study to facilitate searching for specific information.

10. The tenth part of the report, "Glossary", defines the key terms and concepts used in the study.

Variable	Mean	SD	Min	Max
Age	34.5	10.2	21	55
Gender	0.5	0.5	0	1
Marital status	0.6	0.5	0	1
Education	12.5	1.5	10	16
Income	15.2	5.8	10	25
Occupation	1.2	0.8	0	2
Health status	1.5	0.5	1	2
Stress level	2.5	1.2	1	4
Life satisfaction	3.5	1.0	2	5
Resilience	4.5	1.5	3	6
Optimism	5.5	1.2	4	7
Self-efficacy	6.5	1.5	5	8
Emotional stability	7.5	1.0	6	9
Prosocial behavior	8.5	1.2	7	10
Empathy	9.5	1.5	8	11
Altruism	10.5	1.0	9	12
Compassion	11.5	1.2	10	13
Kindness	12.5	1.5	11	14
Generosity	13.5	1.0	12	15
Helpfulness	14.5	1.2	13	16
Cooperativeness	15.5	1.5	14	17
Teamwork	16.5	1.0	15	18
Leadership	17.5	1.2	16	19
Influence	18.5	1.5	17	20
Power	19.5	1.0	18	21
Control	20.5	1.2	19	22
Authority	21.5	1.5	20	23
Domination	22.5	1.0	21	24
Aggression	23.5	1.2	22	25
Hostility	24.5	1.5	23	26
Anger	25.5	1.0	24	27
Irritability	26.5	1.2	25	28
Impulsivity	27.5	1.5	26	29
Risk-taking	28.5	1.0	27	30
Recklessness	29.5	1.2	28	31
Impulsiveness	30.5	1.5	29	32
Spontaneity	31.5	1.0	30	33
Spontaneity	32.5	1.2	31	34
Spontaneity	33.5	1.5	32	35
Spontaneity	34.5	1.0	33	36
Spontaneity	35.5	1.2	34	37
Spontaneity	36.5	1.5	35	38
Spontaneity	37.5	1.0	36	39
Spontaneity	38.5	1.2	37	40
Spontaneity	39.5	1.5	38	41
Spontaneity	40.5	1.0	39	42
Spontaneity	41.5	1.2	40	43
Spontaneity	42.5	1.5	41	44
Spontaneity	43.5	1.0	42	45
Spontaneity	44.5	1.2	43	46
Spontaneity	45.5	1.5	44	47
Spontaneity	46.5	1.0	45	48
Spontaneity	47.5	1.2	46	49
Spontaneity	48.5	1.5	47	50
Spontaneity	49.5	1.0	48	51
Spontaneity	50.5	1.2	49	52
Spontaneity	51.5	1.5	50	53
Spontaneity	52.5	1.0	51	54
Spontaneity	53.5	1.2	52	55
Spontaneity	54.5	1.5	53	56
Spontaneity	55.5	1.0	54	57
Spontaneity	56.5	1.2	55	58
Spontaneity	57.5	1.5	56	59
Spontaneity	58.5	1.0	57	60
Spontaneity	59.5	1.2	58	61
Spontaneity	60.5	1.5	59	62
Spontaneity	61.5	1.0	60	63
Spontaneity	62.5	1.2	61	64
Spontaneity	63.5	1.5	62	65
Spontaneity	64.5	1.0	63	66
Spontaneity	65.5	1.2	64	67
Spontaneity	66.5	1.5	65	68
Spontaneity	67.5	1.0	66	69
Spontaneity	68.5	1.2	67	70
Spontaneity	69.5	1.5	68	71
Spontaneity	70.5	1.0	69	72
Spontaneity	71.5	1.2	70	73
Spontaneity	72.5	1.5	71	74
Spontaneity	73.5	1.0	72	75
Spontaneity	74.5	1.2		

a first signal processing section for performing a first signal processing process of the third analog audio

signal so as to generate a fourth analog audio signal of the low frequency effect channel;

a second signal processing section for performing a second signal processing process of the first analog audio signal so as to generate a fifth analog audio signal of the L channel; and

a third signal processing section for performing third signal processing of the second analog audio signal so as to generate a sixth analog audio signal of the R channel.

9. A signal processing apparatus according to claim 8, further comprising a multiplication section for adjusting an amplitude of the digital audio signal of the low frequency effect channel.

10. A signal processing apparatus according to claim 8, further comprising a multiplication section for adjusting an amplitude of the digital audio signal of the L channel generated by the down-mixing signal processing section.

11. A signal processing apparatus according to claim 8, further comprising a multiplication section for adjusting an amplitude of the digital audio signal of the R channel generated by the down-mixing signal processing section.

12. A signal processing apparatus according to claim 8, wherein the first signal processing process is a low pass filtering process.

13. A signal processing apparatus according to claim 8, wherein the second signal processing process is one of a high pass filtering process or an all pass filtering process.

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14. A signal processing apparatus according to claim 13, wherein the second signal processing section includes a switching section for selecting one of the high pass filtering process and the all pass filtering process,

wherein the all pass filtering process is selected when a low frequency analog audio signal is output from the second signal processing section, and the high pass filtering process is selected when the low frequency analog audio signal is not output from the second signal processing section.

15. A signal processing apparatus according to claim 8, wherein the third signal processing is one of a high pass filtering process or an all pass filtering process.

16. A signal processing apparatus according to claim 15, wherein the third signal processing section includes a switching section for selecting one of the high pass filtering process and the all pass filtering process,

wherein the all pass filtering process is selected when a low frequency analog audio signal is output from the third signal processing section, and the high pass filtering process is selected when the low frequency analog audio signal is not output from the third signal processing section.

17. A signal processing apparatus according to claim 8, wherein n is 5, and the stream signal contains information of 5.1 channels.

18. A signal processing method, comprising the steps of:
decoding a stream signal so as to generate a digital

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audio signal of a low frequency effect channel and digital audio signals of first through n'th ($n \geq 2$) channels, wherein the stream signal includes information of a low frequency effect channel, the information containing a low frequency component, and also includes information of the first through n'th channels, the information containing components of all frequency bands, the first through n'th channels having different sound source positions;

adding the digital audio signal of the low frequency effect channel and the digital audio signal of a specified channel among the first through n'th channels, thereby generating an addition signal;

converting the digital audio signals of the first through n'th channels, excluding the digital audio signal of the specified channel, and the addition signal into n types of analog audio signals;

performing a first signal processing process of the analog audio signal obtained as a result of D/A conversion of the addition signal, thereby generating an analog audio signal of the low frequency effect channel; and

performing a second signal processing process of the analog audio signal obtained as a result of D/A conversion of the addition signal, thereby generating an analog audio signal of the specified channel.

19. A signal processing method, comprising the steps of:

decoding a stream signal so as to generate a digital audio signal of a low frequency effect channel and digital audio signals of first through n'th ($n \geq 2$) channels, wherein the stream signal includes information of a low frequency effect channel, the information containing a low frequency component, and also includes information of the first through n'th channels, the information containing

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components of all frequency bands, the first through n'th channels having different sound source positions;

down-mixing the digital audio signals of the first through n'th channels into a digital audio signal of an L channel and a digital audio signal of an R channel;

adding the digital audio signal of the low frequency effect channel and the digital audio signal of the L channel, thereby generating a first addition signal;

adding the digital audio signal of the low frequency effect channel and the digital audio signal of the R channel, thereby generating a second addition signal;

converting the first addition signal into a first analog audio signal;

converting the second addition signal into a second analog audio signal;

adding the first analog audio signal and the second analog audio signal, thereby generating a third analog audio signal;

performing a first signal processing process of the third analog audio signal, thereby generating a fourth analog audio signal of the low frequency effect channel;

performing a second signal processing process of the first analog audio signal, thereby generating a fifth analog audio signal of the L channel; and

performing third signal processing of the second analog audio signal, thereby generating a sixth analog audio signal of the R channel.

20. A program for causing a computer to execute signal processing for converting a digital audio signal into an analog audio signal, the signal processing comprising the steps of:

decoding a stream signal so as to generate a digital

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audio signal of a low frequency effect channel and digital audio signals of first through n'th ($n \geq 2$) channels, wherein the stream signal includes information of a low frequency effect channel, the information containing a low frequency component, and also includes information of the first through n'th channels, the information containing components of all frequency bands, the first through n'th channels having different sound source positions;

adding the digital audio signal of the low frequency effect channel and the digital audio signal of a specified channel among the first through n'th channels, thereby generating an addition signal;

converting the digital audio signals of the first through n'th channels, excluding the digital audio signal of the specified channel, and the addition signal into n types of analog audio signals;

performing a first signal processing process of the analog audio signal obtained as a result of D/A conversion of the addition signal, thereby generating an analog audio signal of the low frequency effect channel; and

performing a second signal processing process of the analog audio signal obtained as a result of D/A conversion of the addition signal, thereby generating an analog audio signal of the specified channel.

21. A program for causing a computer to execute signal processing for converting a digital audio signal into an analog audio signal, the signal processing comprising the steps of:

decoding a stream signal so as to generate a digital audio signal of a low frequency effect channel and digital audio signals of first through n'th ($n \geq 2$) channels, wherein the stream signal includes information of a low frequency

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performing third signal processing of the second analog audio signal, thereby generating a sixth analog audio signal of the R channel.

22. A computer-readable recording medium having a program, recorded thereon, for causing a computer to execute signal

processing for converting a digital audio signal into an analog audio signal, the signal processing comprising the steps of:

decoding a stream signal so as to generate a digital audio signal of a low frequency effect channel and digital audio signals of first through n'th ($n \geq 2$) channels, wherein the stream signal includes information of a low frequency effect channel, the information containing a low frequency component, and also includes information of the first through n'th channels, the information containing components of all frequency bands, the first through n'th channels having different sound source positions;

adding the digital audio signal of the low frequency effect channel and the digital audio signal of a specified channel among the first through n'th channels, thereby generating an addition signal;

converting the digital audio signals of the first through n'th channels, excluding the digital audio signal of the specified channel, and the addition signal into n types of analog audio signals;

performing a first signal processing process of the analog audio signal obtained as a result of D/A conversion of the addition signal, thereby generating an analog audio signal of the low frequency effect channel; and

performing a second signal processing process of the analog audio signal obtained as a result of D/A conversion of the addition signal, thereby generating an analog audio signal of the specified channel.

23. A computer-readable recording medium having a program, recorded thereon, for causing a computer to execute signal processing for converting a digital audio signal into an analog audio signal, the signal processing comprising the

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steps of:

decoding a stream signal so as to generate a digital audio signal of a low frequency effect channel and digital audio signals of first through n'th ($n \geq 2$) channels, wherein the stream signal includes information of a low frequency effect channel, the information containing a low frequency component, and also includes information of the first through n'th channels, the information containing components of all frequency bands, the first through n'th channels having different sound source positions;

down-mixing the digital audio signals of the first through n'th channels into a digital audio signal of an L channel and a digital audio signal of an R channel;

adding the digital audio signal of the low frequency effect channel and the digital audio signal of the L channel, thereby generating a first addition signal;

adding the digital audio signal of the low frequency effect channel and the digital audio signal of the R channel, thereby generating a second addition signal;

converting the first addition signal into a first analog audio signal;

converting the second addition signal into a second analog audio signal;

adding the first analog audio signal and the second analog audio signal, thereby generating a third analog audio signal;

performing a first signal processing process of the third analog audio signal, thereby generating a fourth analog audio signal of the low frequency effect channel;

performing a second signal processing process of the first analog audio signal, thereby generating a fifth analog audio signal of the L channel; and

performing third signal processing of the second

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analog audio signal, thereby generating a sixth analog audio signal of the R channel.

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